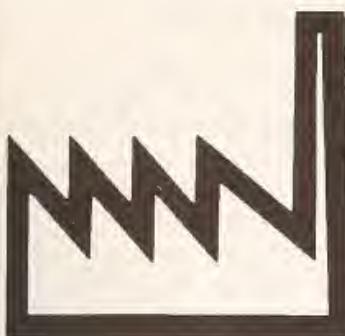


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PRELIMINARY REPORT INDUSTRY SERIES

1987

Census of Manufactures

MC87-I-20D(P)
Issued June 1989

GRAIN MILL PRODUCTS

Industries 2041, 2043, 2044, 2045, 2046, 2047, and 2048

INTRODUCTION

This report presents preliminary statistics from the 1987 Census of Manufactures for those establishments classified in the industries listed above. These data will be superseded by a more comprehensive final paperbound report. The method of data collection and use of administrative data are discussed in detail in the appendix.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The definitions of these industries are the same as those used in the 1987 Standard Industrial Classification (SIC) Manual.¹

INDUSTRY 2041, FLOUR AND OTHER GRAIN MILL PRODUCTS

In the 1987 Census of Manufactures, Industry 2041, Flour and Other Grain Mill Products, had employment of 13.3 thousand. The employment figure was 12 percent below the 15.1 thousand reported in 1982. Compared with 1986, employment in 1987 decreased 1 percent. The 1986 data are based on the Bureau's annual survey of manufacturers (ASM), which is a sample survey conducted each year between censuses.

The total value of shipments for establishments classified in this industry was \$4.8 billion.

In 1987, establishments in this industry accounted for 60 percent of products considered primary to the industry regardless of the industry in which they were produced (coverage ratio). The products primary to this industry appear in table 2 and aggregated to \$4.8 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to \$3.5 billion in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 2043, CEREAL BREAKFAST FOODS

In the 1987 Census of Manufactures, Industry 2043, Cereal Breakfast Foods, had employment of 16.0 thousand. The employment figure was 3 percent above the 15.6 thousand reported in 1982. Compared with 1986, employment in 1987 decreased 2 percent. The 1986 data are based on the Bureau's annual survey of manufacturers (ASM), which is a sample survey conducted each year between censuses.

The total value of shipments for establishments classified in this industry was \$6.6 billion.

In 1987, establishments in this industry accounted for 98 percent of products considered primary to the industry regardless of the industry in which they were produced (coverage ratio). In 1982, the coverage ratio was 96 percent. The products primary to this industry appear in table 2 and aggregated to \$5.1 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to \$1.7 billion in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 2044, RICE MILLING

In the 1987 Census of Manufactures, Industry 2044, Rice Milling, had employment of 4.4 thousand.

Address inquiries to Bureau of the Census, Industry Division, Washington, DC 20233, or call Evelyn A. Jordan (301) 763-2510.



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The total value of shipments for establishments classified in this industry was \$1.2 billion.

In 1987, establishments in this industry accounted for 94 percent of products considered primary to the industry regardless of the industry in which they were produced (coverage ratio). The products primary to this industry appear in table 2 and aggregated to \$1.3 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to \$831.6 million in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 2045, PREPARED FLOUR MIXES AND DOUGHS

In the 1987 Census of Manufactures, Industry 2045, Prepared Flour Mixes and Doughs, had employment of 12.2 thousand.

The total value of shipments for establishments classified in this industry was \$2.8 billion.

In 1987, establishments in this industry accounted for 63 percent of products considered primary to the industry regardless of the industry in which they were produced (coverage ratio). The products primary to this industry appear in table 2 and aggregated to \$2.7 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to \$1.5 billion in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 2046, WET CORN MILLING

In the 1987 Census of Manufactures, Industry 2046, Wet Corn Milling, had employment of 8.6 thousand. The employment figure was 9 percent below the 9.5 thousand reported in 1982. Compared with 1986, employment in 1987 increased 4 percent. The 1986 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The total value of shipments for establishments classified in this industry was \$4.8 billion.

In 1987, establishments in this industry accounted for 94 percent of products considered primary to the industry regardless of the industry in which they were produced (coverage ratio). In 1982, the coverage ratio was 92 percent. The products primary to this industry appear in table 2 and aggregated to \$4.4 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to \$2.7 billion in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 2047, DOG AND CAT FOOD

In the 1987 Census of Manufactures, Industry 2047, Dog and Cat Food, had employment of 13.4 thousand.

The total value of shipments for establishments classified in this industry was \$5.1 billion.

In 1987, establishments in this industry accounted for 97 percent of products considered primary to the industry regardless of the industry in which they were produced (coverage ratio). The products primary to this industry appear in table 2 and aggregated to \$4.7 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to \$2.3 billion in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 2048, PREPARED FEEDS, N.E.C.

In the 1987 Census of Manufactures, Industry 2048, Prepared Feeds, N.E.C., had employment of 34.5 thousand.

The total value of shipments for establishments classified in this industry was \$11.5 billion.

In 1987, establishments in this industry accounted for 96 percent of products considered primary to the industry regardless of the industry in which they were produced (coverage ratio). The products primary to this industry appear in table 2 and aggregated to \$10.7 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to \$8.9 billion in 1987. Data on specific materials consumed appear in table 3.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in the tables in this publication:

-	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards on the basis of either the response rate or a consistency review.
(X)	Not applicable.
(Z)	Less than half the unit shown.
do	Ditto.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone	Subject Area	Contact	Phone
Census/ASM Durables Nondurables	Kenneth Hansen Michael Zampogna	(301) 763-7304 (301) 763-2510	Import/Export Publications	Foreign Trade Division	(301) 763-5140
Current Indus- trial Reports Durables Nondurables	Malcolm Bernhardt Thomas Flood	(301) 763-2518 (301) 763-5911	Industry Analy- sis and Fore- casts	International Trade Administration	(202) 377-4356

Table 1. Historical Statistics for the Industry: 1987 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendix.]

Year ¹	Com- pa- nies ² (no.)	All establish- ments ³		All employees		Production workers			Value added by manufac- ture ⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expendi- tures (million dollars)	End-of- year inven- tories ⁴ (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Spec- cial- iza- tion (per- cent)	Cover- age (per- cent)
INDUSTRY 2041, FLOUR AND OTHER GRAIN MILL PRODUCTS															
1987 Census	235	354	165	13.3	350.5	9.8	21.2	242.0	1 325.7	3 525.6	4 842.6	78.6	339.8	98	560
1986 ASM	(NA)	(NA)	(NA)	13.5	348.7	9.9	21.4	241.3	1 345.9	3 642.5	5 003.1	62.8	318.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	13.3	331.5	9.8	21.0	230.1	1 159.4	4 039.0	5 204.6	82.7	407.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	13.9	335.5	10.3	22.3	234.4	1 208.0	4 108.5	5 305.7	68.7	396.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	14.7	335.4	10.9	24.2	237.3	1 198.4	4 012.1	5 228.6	64.6	354.9	(NA)	(NA)
1982 Census	251	360	174	15.1	323.0	11.4	24.2	233.3	1 094.3	3 825.5	4 932.8	90.6	361.6	97	(NA)
1981 ASM	(NA)	(NA)	(NA)	15.8	305.7	11.6	26.1	214.6	1 113.7	4 189.1	5 313.8	67.3	382.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	15.5	273.9	11.3	25.6	195.7	1 030.4	3 819.8	4 835.4	53.3	439.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	15.3	255.5	11.2	25.2	181.3	942.5	3 281.2	4 218.3	68.4	402.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	15.1	241.6	11.1	24.4	168.5	845.3	3 293.4	3 760.9	56.9	303.8	(NA)	(NA)
1977 Census	300	407	173	15.6	222.3	11.3	24.6	153.4	824.5	2 854.2	3 683.3	52.4	263.2	98	(NA)
1976 ASM	(NA)	(NA)	(NA)	17.5	217.1	12.5	26.9	149.0	746.1	3 343.9	4 095.9	53.6	303.3	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	17.7	204.0	12.9	27.7	139.3	714.9	3 589.5	4 327.6	45.8	328.2	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	17.4	185.3	13.0	28.1	128.7	609.1	3 902.1	4 502.2	44.0	381.1	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	17.0	167.9	12.7	28.4	118.5	589.1	2 785.7	3 328.3	29.8	375.7	(NA)	(NA)
1972 Census	340	457	181	16.1	152.8	11.9	26.9	108.1	509.8	1 885.2	2 380.0	30.0	211.3	97	(NA)
INDUSTRY 2043, CEREAL BREAKFAST FOODS															
1987 Census	33	53	34	16.0	598.9	13.1	28.4	478.6	4 904.5	1 669.8	6 565.7	333.4	306.6	79	98
1986 ASM	(NA)	(NA)	(NA)	16.4	585.1	13.3	27.8	464.9	4 513.1	1 681.4	6 167.6	270.1	308.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	16.3	563.1	13.3	27.3	447.1	3 994.7	1 721.2	5 718.1	228.3	275.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	16.2	525.9	13.2	26.8	415.0	3 478.6	1 636.2	5 107.2	189.3	264.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	16.3	483.0	13.3	26.7	376.3	3 069.3	1 502.0	4 571.9	176.7	255.4	(NA)	(NA)
1982 Census	32	52	37	15.6	435.0	12.8	25.5	340.0	2 622.8	1 475.0	4 131.9	165.4	229.2	77	96
1981 ASM	(NA)	(NA)	(NA)	15.6	412.6	13.4	27.6	329.0	2 361.9	1 586.7	3 950.2	126.6	251.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	15.9	375.5	13.7	28.1	302.3	2 108.4	1 401.6	3 476.1	138.2	250.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	16.3	347.2	14.1	28.6	280.0	1 859.6	1 261.3	3 095.7	992.0	214.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	16.6	305.2	14.0	28.3	240.3	1 598.7	1 084.0	2 674.1	62.5	164.5	(NA)	(NA)
1977 Census	32	48	35	16.4	287.4	13.8	28.8	230.0	1 447.0	1 061.2	2 497.5	79.8	152.1	74	93
1976 ASM	(NA)	(NA)	(NA)	15.0	241.6	12.6	25.6	196.5	1 234.7	927.9	2 158.2	76.1	135.1	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	13.9	209.6	11.6	24.9	169.3	1 056.9	979.4	2 027.7	54.8	117.4	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	13.9	181.9	11.6	24.2	146.0	808.5	837.2	1 641.1	54.9	126.7	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	13.1	161.6	11.0	23.5	129.6	710.0	568.4	1 281.1	33.9	99.7	(NA)	(NA)
1972 Census	34	47	26	12.9	140.9	10.7	21.6	111.6	688.4	439.1	1 125.5	24.9	78.8	77	84
INDUSTRY 2044, RICE MILLING⁷															
1987 Census	49	62	34	4.4	87.7	3.4	7.1	59.3	435.5	831.6	1 210.1	48.7	476.0	99	94
INDUSTRY 2045, PREPARED FLOUR MIXES AND DOUGHS⁸															
1987 Census	111	147	96	12.2	280.9	8.3	16.9	161.7	1 290.7	1 461.7	2 759.2	66.9	159.2	89	563
INDUSTRY 2046, WET CORN MILLING															
1987 Census	30	60	36	8.6	299.4	5.9	13.0	193.1	2 030.0	2 745.7	4 795.7	282.5	244.9	88	94
1986 ASM	(NA)	(NA)	(NA)	8.3	263.2	5.6	12.2	167.6	1 472.8	2 778.7	4 273.5	340.5	231.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	8.7	266.5	6.1	13.0	177.5	1 363.4	2 826.4	4 189.7	450.9	262.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	8.4	247.9	5.9	12.5	167.2	1 020.3	2 803.4	3 814.8	179.3	243.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	8.9	254.0	6.3	13.5	171.2	1 224.1	2 279.9	3 501.2	131.3	253.3	(NA)	(NA)
1982 Census	25	42	27	9.5	254.7	6.7	13.8	170.6	1 157.4	2 101.0	3 268.4	326.2	243.4	89	92
1981 ASM	(NA)	(NA)	(NA)	10.4	266.6	7.4	14.8	185.2	1 428.7	2 403.7	3 836.0	469.7	229.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	10.7	242.7	7.6	14.9	166.7	1 240.6	2 018.5	3 239.1	183.1	247.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	10.8	216.1	7.5	14.9	152.7	847.5	1 615.5	2 442.4	140.0	208.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	11.1	196.9	8.1	15.9	142.8	690.0	1 443.9	2 122.5	205.3	185.9	(NA)	(NA)
1977 Census	22	39	27	10.9	191.1	7.8	15.7	132.2	666.7	1 338.0	2 014.8	232.2	158.4	94	93
1976 ASM	(NA)	(NA)	(NA)	11.0	179.8	8.0	16.5	126.1	650.2	1 352.4	2 002.5	164.7	163.7	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	10.9	162.9	7.9	16.5	112.7	872.9	1 274.8	2 141.7	157.8	142.9	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	11.1	151.4	7.7	15.9	92.5	673.4	1 197.5	1 852.1	82.1	143.6	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	11.7	143.7	8.2	17.0	94.1	359.7	768.9	1 123.0	67.3	91.7	(NA)	(NA)
1972 Census	26	41	27	12.1	137.7	8.4	17.1	88.6	331.2	498.7	832.3	59.7	82.8	93	97
INDUSTRY 2047, DOG AND CAT FOOD⁹															
1987 Census	130	180	101	13.4	365.0	9.8	20.5	243.7	2 737.9	2 287.8	5 056.7	107.2	235.1	99	97
INDUSTRY 2048, PREPARED FEEDS, N.E.C.⁹															
1987 Census	1 272	1 720	547	34.5	720.7	19.5	40.9	349.5	2 504.3	8 948.0	11 454.4	154.5	601.7	98	96

Note: Establishments of single unit companies with up to 20 employees (cutoff varied by industry) were excluded from the mail portion of the census. Data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were estimated based on administrative-record information from other agencies in conjunction with industry averages. These establishments accounted for the following percent of total value of shipments: SIC 2041, 5%; SIC 2043, 1%; SIC 2044, 14%; SIC 2045, 10%; SIC 2046, 1%; SIC 2047, 5%; SIC 2048, 21%.

¹In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1972, see 1972 Census of Manufactures, vol. II, table 1a of the Industry chapter.

²For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

³Includes establishments with payroll at any time during year.

⁴Beginning with the 1982 Census of Manufactures, all respondents were requested to report their inventories at (the lower of) cost or market prior to adjustment to LIFO cost. This is a change from prior Censuses and annual surveys of manufactures in which respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, inventories and value added by manufacture are not comparable to prior-year data.

⁵Prepared flour mixes, doughs, and batters from industries 2041 and 2045 are included when calculating coverage ratios.

⁶Estimates for new capital expenditures have associated standard error of 15 percent or more and may be of limited reliability. Estimates for other data items are of acceptable reliability.

⁷Industry definition is new for 1987 Census of Manufactures. Head rice mixed with other ingredients was moved to SIC 2099.

⁸Industry definition is new for 1987 Census of Manufactures. Frozen doughs and batters were added from SIC 2038.

⁹Industry definition is new for 1987 Census of Manufactures. Specialty feeds (see table 2, page 9) previously included in industry 2047 are now in industry 2048.

Table 2. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text.]

1987 product code	Product	1987			1982		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
2041- --	FLOUR AND OTHER GRAIN MILL PRODUCTS						
	Total	(NA)	(X)	4 777.5	(NA)	(X)	4 871.2
20411 --	Wheat flour, except flour mixes	(NA)	(X)	3 208.4	(NA)	(X)	3 102.3
	White flour:						
20411 05	Shipped for export: Commercial dollar exports, all white flour types	1,000 sacks (cwt)	13	18 059.7	140.6	13	4 327.3
20411 07	All other exports of white flour, such as those under Public Law 480	do	5	(S)	97.5	9	9 191.2
	Domestic shipments:						
20411 11	Bakers' and institutional white bread-type flour: Shipped in bulk cars or trucks	1,000 sacks (cwt)	20	**149 010.9	1 326.2	22	120 204.9
20411 13	Shipped in containers, including tote bins	do	15	23 370.2	245.7	18	19 729.9
20411 15	Bakers' and institutional soft wheat flour, including commercial bakery, restaurant, hospital, etc.:						
20411 17	Shipped in bulk cars or trucks	1,000 sacks (cwt)	24	38 640.3	320.9	30	52 742.8
	Shipped in containers, including tote bins	do	19	8 692.7	89.8	19	5 171.0
	Family white flour:						
	All family flour other than self-rising, such as phosphated, plain, bromated, enriched, and all-purpose, including all-purpose purchased by the U.S. Government for domestic donation:						
20411 21	Shipped in containers less than 25 lb	1,000 sacks (cwt)	26	**28 774.0	358.5	24	20 360.8
20411 23	Shipped in containers 25 lb or more	do	21	*9 907.7	99.3	17	3 019.2
20411 26	Self-rising flour	do	18	3 664.1	66.2	(NA)	4 884.0
	Flour shipped to blenders or other processors (for further processing and/or packing before resale or shipment):						
20411 29	For use in food products (mixes, refrigerated doughs, soups, etc.)	1,000 sacks (cwt)	11	**10 700.9	81.6	18	17 618.6
20411 28	For use in nonfood products (pet food, industrial, etc.)	do	13	*3 062.3	16.6	10	3 549.5
20411 31	Other than white flour:						
	Whole wheat						
	1,000 sacks (cwt)						
20411 51	Durum flour and semolina	do	17	4 633.4	50.4	17	2 465.9
20411 61	Bulgur	do	10	26 727.8	258.3	9	17 676.5
20411 98	Other wheat flour, including farina	do	5	(S)	30.1	5	5 171.2
20411 00	Wheat flour, except flour mixes (including white flour, whole wheat, durum, etc., made from wheat ground in this plant), n.s.k.	do	11	(S)	21.4	11	1 489.2
		(NA)	(X)	5.2	(NA)	(X)	16.3
20412 --	Wheat mill products other than flour						
20412 13	Wheat mill feed	1,000 s tons	47	*5 556.6	298.3	64	5 061.9
20412 19	Other wheat mill products, including wheat germ, wheat bran, etc.	do	27	309.4	38.4	9	28.6
20412 00	Wheat mill products other than flour, n.s.k.	do	(NA)	(X)	.2	(NA)	(X)
							8.4
							13.2
20413 --	Corn mill products						
	Corn products for human consumption:						
20413 11	Whole cornmeal	1,000 sacks (cwt)	10	(S)	36.8	22	3 191.2
20413 15	Degermed cornmeal	do	9	*5 482.6	165.3	12	7 648.3
20413 21	Corn grits and hominy, except for brewers' use	do	4	**8 310.1	54.5	10	6 746.3
20413 23	Corn grits and flakes for brewers' use	do	5	*3 147.9	18.5	8	6 537.4
20413 65	Hominy feed, cornmeal, and other byproducts of dry corn milling (for animal feed)	1,000 s tons	31	*823.7	68.9	40	1 396.7
							138.2
20413 93	Corn flour	1,000 sacks (cwt)	8	(S)	111.8	8	4 785.7
	Other corn mill products:						
20413 95	For human consumption	1,000 sacks (cwt)	9	8 272.0	89.9	11	2 858.6
20413 97	Not for human consumption	do	6	1 095.5	7.7	5	412.2
20413 00	Corn mill products, n.s.k.	do	(NA)	(X)	.7	(NA)	(X)
							44.5
							3.5
							10.0
20415 --	Flour mixes and refrigerated and frozen doughs and batters, made in flour mills (see also code 20450)						
	Flour mixes:						
20415 51	Pancake and waffle mixes: Shipped in containers less than 5 lb	1,000 sacks (cwt)	11	**1 653.8	56.3	8	726.1
20415 52	Shipped in containers 5 lb or more	do	3	(D)	(D)	4	155.3
20415 53	Cake mixes, including gingerbread: Shipped in containers less than 5 lb	1,000 sacks (cwt)	4	(D)	(D)	5	1 381.9
20415 54	Shipped in containers 5 lb or more	do	4	(D)	(D)	3	329.4
20415 56	Biscuit mixes: Shipped in containers less than 5 lb	1,000 sacks (cwt)	10	*527.7	18.0	7	525.7
20415 57	Shipped in containers 5 lb or more	do	4	(D)	(D)	6	212.5
20415 60	Pie crust mixes	do	1	(D)	(D)	2	(D)
20415 63	Doughnuts and other sweet yeast goods mixes	do	3	(D)	(D)	3	(D)
20415 66	Bread and bread-type roll mixes: Shipped in containers less than 5 lb	1,000 sacks (cwt)	3	117.7	7.6	2	(D)
20415 67	Shipped in containers 5 lb or more	do	5	534.1	18.3	5	693.3
							20.0
							8.5
							(D)
							(D)
							(D)

See footnotes at end of table.

Table 2. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text.]

1987 product code	Product	1987			1982		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
2041- --	FLOUR AND OTHER GRAIN MILL PRODUCTS—Con.						
20415 --	Flour mixes and refrigerated and frozen doughs and batters, made in flour mills (see also code 20450)—Con.						
	Flour mixes—Con.						
20415 72	Other prepared flour mixes, including cookie mixes:						
	Shipped in containers less than 5 lb (cwt)-----1,000 sacks	5	(D)	(D)	8	* 1 660.8	75.6
20415 74	Shipped in containers 5 lb or more -----do-----	5	(S)	11.3	10	865.7	20.2
20415 81	Refrigerated doughs and batters:						
20415 85	Biscuit dough -----mil lb-----	-	-	-	-	-	-
20415 87	Bread and bread-type roll dough, including dinner -----do-----	-	-	-	-	-	-
	Other doughs and batters, including pizza, coffeecake, pancake, cookie, etc. -----do-----	2	(D)	(D)	2	(D)	(D)
20415 91	Frozen doughs and batters:						
20415 93	Bread and bread-type roll dough -----mil lb-----	9	(D)	(D)	(NA)	(?)	(?)
20415 99	Other frozen doughs and batters, including pizza, coffeecake, pancake, cookie, etc. -----do-----	5	(D)	(D)	(NA)	(?)	(?)
20416 00	Flour mixes and refrigerated doughs, n.s.k. -----	(NA)	(X)	-	(NA)	(X)	(D)
20416 11	Other grain mill products -----	(NA)	(X)	82.2	(NA)	(X)	165.6
	Rye flour -----1,000 sacks (cwt)-----	3	1 103.5	9.2	6	1 434.8	16.6
20416 23	Other flour (excluding wheat, corn, rye) -----do-----	4	(D)	(D)	9	3 063.6	44.9
20416 27	Other mill feed (oats, rye, buckwheat, etc.) -----1,000 s tons-----	9	(D)	(D)	13	613.5	101.7
20416 00	Other grain mill products, n.s.k. -----	(NA)	(X)	1.4	(NA)	(X)	2.5
20410 --	Flour and other grain mill products, n.s.k. -----	(NA)	(X)	159.2	(NA)	(X)	188.9
20410 00	Flour and other grain mill products, n.s.k., typically for establishments with 5 employees or more (see note) -----	(NA)	(X)	21.4	(NA)	(X)	141.4
20410 02	Flour and other grain mill products, n.s.k., typically for establishments with less than 5 employees (see note) -----	(NA)	(X)	136.9	(NA)	(X)	47.5
2043- --	CEREAL BREAKFAST FOODS						
	Total -----	(NA)	(X)	5 081.1	(NA)	(X)	3 111.5
20430 --	Cereal breakfast foods:						
	Ready to serve:						
20430 11	Corn flakes and other corn breakfast foods -----mil lb-----	9	804.9	1 302.3	6	705.3	811.2
20430 12	Wheat flakes and other wheat breakfast foods -----do-----	10	844.7	1 359.6	10	719.8	811.1
20430 15	Oat breakfast foods -----do-----	10	380.4	706.9	9	(D)	(D)
20430 17	Rice breakfast foods -----do-----	9	256.9	518.1	7	275.8	394.2
20430 21	Preparations of other grains and mixed grains, except infants' cereals -----do-----	13	366.0	743.1	13	289.0	339.5
20430 23	Infants' cereals, all types of grains -----do-----	4	(D)	(D)			
	To be cooked before serving:						
20430 55	Farina and other wheat foods, except instant cereals -----mil lb-----	5	82.0	60.2	8	118.7	84.3
20430 57	Rolled oats and oatmeal, except instant cereals -----do-----	4	287.7	120.5	5	(D)	(D)
20430 61	Preparations of other grains and mixed grains, except instant cereals -----do-----	3	9.8	9.0	3	9.2	7.2
20430 63	Instant hot cereals, all types of grain (mix-and-eat type) -----do-----	3	(D)	(D)			
20430 00	Cereal breakfast foods, n.s.k., typically for establishments with 10 employees or more (see note) -----	(NA)	(X)	6.2	(NA)	(X)	2.4
20430 02	Cereal breakfast foods, n.s.k., typically for establishments with less than 10 employees (see note) -----	(NA)	(X)	9.7	(NA)	(X)	3.1
2044- --	RICE MILLING						
	Total -----	(NA)	(X)	* 1 257.4	(NA)	(X)	* 1 797.0
20440 --	Milled rice and byproducts:						
	Head rice not packaged with other ingredients:						
20440 11	Packed in bags 100 lb or more -----mil lb-----	27	**5 357.7	517.7	25	5 491.7	935.3
20440 15	Packed in containers 3 lb or less -----do-----	12	651.8	106.1	17	554.0	176.5
20440 17	Packed in all other containers -----do-----	15	* 3 321.7	446.3	19	2 229.2	492.4
20440 21	Second heads -----do-----	14	480.8	30.3	13	348.5	36.6
20440 35	Screenings and brewers' rice -----do-----	14	622.4	33.1	16	542.8	47.0
20440 51	Bran -----do-----	14	(S)	14.8	16	997.7	29.7
20440 99	All other milled rice and byproducts, including rice flour -----do-----	12	(S)	65.0	15	4 050.1	46.8
20440 00	Milled rice products, n.s.k., typically for establishments with 10 employees or more (see note) -----	(NA)	(X)	27.3	(NA)	(X)	24.4
20440 02	Milled rice products, n.s.k., typically for establishments with less than 10 employees (see note) -----	(NA)	(X)	16.8	(NA)	(X)	8.2
2045- --	PREPARED FLOUR MIXES AND DOUGHS						
	Total -----	(NA)	(X)	2 712.2	(NA)	(X)	1 691.8
20450 --	Flour mixes and refrigerated and frozen doughs and batters, not made in flour mills (see also code 20450):						
	Flour mixes:						
20450 51	Pancake and waffle mixes:						
	Shipped in containers less than 5 lb (cwt)-----1,000 sacks	6	730.4	43.5	10	2 654.3	114.4
20450 52	Shipped in containers 5 lb or more -----do-----	8	1 914.5	65.4	10	812.6	17.3
20450 53	Cake mixes, including gingerbread:						
	Shipped in containers less than 5 lb (cwt)-----1,000 sacks	8	(D)	(D)	12	6 181.1	451.5
20450 54	Shipped in containers 5 lb or more -----do-----	19	4 693.9	355.9	16	**818.4	42.4

See footnotes at end of table.

Table 2. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987			1982		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
2045- --	PREPARED FLOUR MIXES AND DOUGHS—Con.						
20450 --	Flour mixes and refrigerated and frozen doughs and batters, not made in flour mills (see also code 20415)—Con.						
Flour mixes—Con.							
20450 56	Biscuit mixes: Shipped in containers less than 5 lb	1,000 sacks (cwt)---	3	(D)	(D)	4	519.5 7.5
20450 57	Shipped in containers 5 lb or more	do---	7	171.7	6.1	11	*521.4 19.0
20450 60	Pie crust mixes	do---	7	226.4	14.7	9	(D) (D)
20450 63	Doughnuts and other sweet yeast goods mixes	do---	14	6 215.3	168.1	17	(D) (D)
20450 66	Bread and bread-type roll mixes: Shipped in containers less than 5 lb	1,000 sacks (cwt)---	3	(D)	(D)	5	(D) (D)
20450 67	Shipped in containers 5 lb or more	do---	15	1 995.3	91.1	15	1 749.6 41.4
20450 72	Other prepared flour mixes, including cookie mixes: Shipped in containers less than 5 lb	1,000 sacks (cwt)---	8	3 149.1	235.3	12	*3 664.3 242.4
20450 74	Shipped in containers 5 lb or more	do---	12	3 832.7	153.7	13	3 438.4 88.9
20450 81	Refrigerated doughs and batters: Biscuit dough	mil lb---	4	(D)	(D)	4	(D) (D)
20450 85	Bread and bread-type roll dough, including dinner	do---	2	(D)	(D)	5	(D) (D)
20450 87	Other doughs and batters, including pizza, coffeecake, pancake, cookie, etc.	do---	10	281.1	222.5	15	(D) (D)
20450 91	Frozen doughs and batters: Bread and bread-type roll dough	mil lb---	26	*470.2	232.3	(NA)	(³) (³)
20450 93	Other frozen doughs and batters, including pizza, coffeecake, pancake, cookie, etc.	do---	27	500.8	238.6	(NA)	(³) (³)
20450 00	Flour mixes and refrigerated doughs, not made in flour mills, n.s.k., typically for establishments with 5 employees or more (see note)		(NA)	(X)	146.3	(NA)	(X) (D)
20450 02	Flour mixes and refrigerated doughs, not made in flour mills, n.s.k., typically for establishments with less than 5 employees (see note)		(NA)	(X)	68.2	(NA)	(X) 15.5
2046- --	WET CORN MILLING						
	Total		(NA)	(X)	4 434.2	(NA)	(X) 3 105.7
20461 --	Corn sweeteners		(NA)	(X)	2 182.7	(NA)	(X) 1 610.4
	Glucose syrup (corn syrup):						
20461 03	Type I (20 up to 38 dextrose equivalent)	mil lb---	4	730.6	79.5	5	769.9 65.6
20461 04	Type II (38 up to 58 dextrose equivalent)	do---	7	3 021.4	231.4	7	1 799.7 159.7
20461 13	Type III (58 up to 90 dextrose equivalent)	do---	4	677.6	45.5	6	1 692.4 151.5
20461 16	Type IV (90 dextrose equivalent or more)	do---	2	(D)	(D)	5	601.1 51.3
20461 17	Glucose syrup solids (dried glucose syrup)	do---	4	201.5	27.8	6	251.8 54.7
20461 19	Dextrose monohydrate and dextrose anhydrous, including crystalline fructose (dry fructose)	do---	4	1 823.5	208.6	3	1 277.5 227.2
	High fructose corn syrup (HFCS):						
20461 31	Type 5 up to 50 percent fructose	mil lb---	9	5 163.1	468.3	8	4 546.2 435.3
20461 34	50 up to 80 percent fructose	do---	7	9 050.2	993.7	8	3 737.4 462.4
20461 37	80 percent fructose or more	do---	3	(D)	(D)	(NA)	(X)
20461 00	Corn sweeteners, n.s.k.		(NA)	(X)	11.7	(NA)	(X) —
20462 --	Manufactured starch		(NA)	(X)	773.0	(NA)	(X) 655.1
20462 41	Corn starch, including milo	mil lb---	10	5 619.5	613.2	11	5 026.9 579.2
20462 43	Other starch, including Irish potato, wheat, rice, etc.	do---	8	576.2	106.7	11	452.0 47.5
20462 47	Dextrin (corn, tapioca, and other)	do---	3	(D)	(D)	(NA)	(D) (D)
20462 49	Maltodextrins less than 20 dextrose equivalent	do---	2	(D)	(D)	(NA)	(D) (D)
20462 00	Manufactured starch, n.s.k.		(NA)	(X)	8.5	(NA)	(X) —
20463 --	Corn oil		(NA)	(X)	598.6	(NA)	(X) 234.9
20463 53	Crude	mil lb---	10	992.5	264.0	14	650.8 136.1
20463 54	Once-refined, after alkali or caustic wash, but before deodorizing or use in end products	do---	5	(D)	(D)	8	340.8 98.8
20463 56	Fully-refined, including margarine oil	do---	8	(D)	(D)	(NA)	(X)
20463 59	Once-refined, purchased and deodorized only	do---	5	88.8	24.3	(NA)	(X)
20463 00	Corn oil, n.s.k.		(NA)	(X)	2.9	(NA)	(X) —
20464 --	Wet process corn byproducts		(NA)	(X)	845.8	(NA)	(X) 577.7
20464 62	Corn gluten feed	mil lb---	10	7 120.3	474.9	12	5 850.9 332.2
20464 65	Corn gluten meal	do---	11	1 491.6	213.5	10	1 164.9 133.1
20464 72	Gluten (except corn), including wheat, rice, potato, etc.	do---	6	430.3	71.3	10	1 478.1 112.4
20464 75	Other wet process corn byproducts, including steepwater concentrate (50 percent solids basis)	do---	8	1 319.1	80.8	(NA)	—
20464 00	Wet process corn byproducts, n.s.k.		(NA)	(X)	5.3	(NA)	(X) —
20460 --	Wet corn milling products, n.s.k.		(NA)	(X)	34.1	(NA)	(X) 27.6
20460 00	Wet corn milling products, n.s.k., typically for establishments with 15 employees or more (see note)		(NA)	(X)	34.6	(NA)	(X) 22.8
20460 02	Wet corn milling products, n.s.k., typically for establishments with less than 15 employees (see note)		(NA)	(X)	9.5	(NA)	(X) 4.8
2047- --	DOG AND CAT FOOD						
	Total		(NA)	(X)	4 700.9	(NA)	(X) 4 080.8
20473 --	Dog food		(NA)	(X)	3 066.0	(NA)	(X) 2 655.4
	Canned:						
20473 21	Ration type	mil lb---	14	568.9	189.5	19	951.7 236.6
20473 23	Other	do---	12	1 232.2	613.7	14	1 190.0 438.9
	Dry and semimoist:						
20473 26	Shipped in packages less than 25 lb	mil lb---	38	3 519.7	969.7	43	2 331.1 771.2
20473 38	Shipped in packages 25 lb or more	do---	72	4 364.4	1 255.0	76	5 539.9 1 183.1
20473 00	Dog food, n.s.k.		(NA)	(X)	38.1	(NA)	(X) 25.6

See footnotes at end of table.

Table 2. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text.]

1987 product code	Product	1987			1982		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
2047- --	DOG AND CAT FOOD—Con.						
20474 —	Cat food	(NA)	(X)	1 444.9	(NA)	(X)	1 272.9
20474 41	Canned:						
20474 43	Fish base	17	678.2	366.4	17	715.9	148.5
20474 45	Meat base	13	441.0	269.6	10	824.9	424.5
20474 45	Other (ration meal base)	4	(D)	(D)	7	87.2	22.6
20474 54	Dry	29	1 297.2	639.1	32	1 285.7	506.9
20474 57	Semimoist	6	(D)	(D)	7	207.5	170.5
20474 00	Cat food, n.s.k.	(NA)	123.5	9.2	(NA)	(X)	-
20470 —	Dog and cat food, n.s.k.	(NA)	(X)	190.0	(NA)	(X)	152.5
20470 00	Dog and cat food, n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	(X)	131.1	(NA)	(X)	106.9
20470 02	Dog and cat food, n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	(X)	57.2	(NA)	(X)	45.6
2048- --	PREPARED FEEDS, N.E.C.						
	Total	(NA)	(X)	10 661.3	(NA)	(X)	10 847.1
20481 —	Chicken and turkey feed, supplements, concentrates, and premixes	(NA)	(X)	3 248.3	(NA)	(X)	3 642.1
	Complete feeds:						
20481 11	Chicken:						
20481 11	Starter-grower	1,000 s tons	93	2 296.8	340.9	106	2 580.7
20481 15	Layer-breeders	do	130	4 396.5	569.3	154	4 715.4
20481 16	Broiler	do	47	8 861.0	1 291.4	63	8 779.0
20481 18	Turkey	do	54	2 075.2	316.8	56	1 932.2
	Feed supplements and concentrates:						
20481 21	Chicken:						
20481 21	Starter-grower	1,000 s tons	26	(S)	23.8	26	\$158.5
20481 22	Layer-breeders	do	32	756.2	59.0	54	\$554.0
20481 23	Broiler	do	14	(S)	76.2	20	\$1 386.0
20481 24	Turkey	do	19	*118.8	26.6	20	\$147.6
	Feed premixes (feed-base):						
20481 31	Chicken:						
20481 31	Starter-grower	1,000 s tons	16	109.0	29.3	(NA)	(S)
20481 32	Layer-breeders	do	20	(S)	20.8	(NA)	(S)
20481 33	Broiler	do	14	(S)	32.7	(NA)	(S)
20481 34	Turkey	do	8	10.0	6.2	(NA)	(S)
20481 00	Chicken and turkey feed, n.s.k.	do	(NA)	(X)	455.5	(NA)	(S)
20482 —	Dairy cattle feed, complete:						
20482 00	Dairy cattle feed, complete	1,000 s tons	189	*9 077.2	1 188.9	211	*9 218.1
20483 —	Dairy cattle feed supplements, concentrates, and premixes						
20483 01	Feed supplements and concentrates	1,000 s tons	(NA)	(X)	533.6	(NA)	(X)
20483 02	Feed premixes (feed-base)	do	118	1 682.8	391.8	—	544.3
20483 00	Dairy cattle feed supplements, concentrates, and premixes, n.s.k.	do	48	**157.5	84.1	147	2 122.4
			(NA)	(X)	57.6	—	544.3
20484 —	Swine feed, complete:						
20484 00	Swine feed, complete	1,000 s tons	113	2 499.7	415.3	209	*2 820.1
20485 —	Swine feed supplements, concentrates, and premixes						
20485 03	Feed supplements and concentrates	1,000 s tons	(NA)	(X)	1 259.8	(NA)	(X)
20485 04	Feed premixes (feed-base)	do	116	3 347.1	928.5	—	1 113.7
20485 00	Swine feed supplements, concentrates, and premixes, n.s.k.	do	56	1 082.2	255.2	153	3 747.7
			(NA)	(X)	76.2	—	1 113.7
20486 —	Beef cattle feed, complete:						
20486 00	Beef cattle feed, complete	1,000 s tons	134	*3 066.8	420.5	176	*3 389.8
20487 —	Beef cattle feed supplements, concentrates, and premixes						
20487 05	Feed supplements and concentrates	1,000 s tons	(NA)	(X)	543.6	(NA)	(X)
20487 06	Feed premixes (feed-base)	do	103	*3 333.5	471.7	—	607.7
20487 00	Beef cattle feed supplements, concentrates, and premixes, n.s.k.	do	32	172.2	66.9	129	3 033.3
			(NA)	(X)	5.0	—	607.7
20488 —	Other poultry and livestock feed, including duck, goose, horse, mule, etc.						
	Poultry:						
20488 11	Complete feeds (duck, etc.)	1,000 s tons	18	**85.4	12.7	20	134.6
20488 12	Feed supplements and concentrates (duck, etc.)	do	5	(S)	4.6	9	*21.1
20488 13	Feed premixes (feed-base) (duck, etc.)	do	9	188.9	52.9	—	5.9
	Livestock:						
20488 16	Complete livestock feeds:						
20488 16	Horse and mule	1,000 s tons	119	1 171.9	224.1	125	*1 156.3
20488 21	Other (sheep, etc.)	do	42	*180.0	45.6	49	758.4
20488 23	Livestock feed supplements and concentrates:						
20488 23	Horse and mule	1,000 s tons	24	82.5	16.1	25	\$100.7
20488 25	Other (sheep, etc.)	do	28	*180.2	25.8	30	\$124.7

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		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
2048- --	PREPARED FEEDS, N.E.C.—Con.						
20488 --	Other poultry and livestock feed, including duck, goose, horse, mule, etc.—Con.						
	Livestock—Con.						
20488 31	Livestock feed premixes (feed-base):						
	Horse and mule	1,000 s tons	13	**20.9	6.4	(NA)	(5)
20488 33		do	13	(S)	10.9	(NA)	(5)
20488 00	Other (sheep, etc.)	do					
	Other poultry and livestock feed, including duck, goose, horse, mule, etc., n.s.k.		(NA)	(X)	22.1	(NA)	(X)
20489 --	Other prepared animal feeds, including feeding materials and adjuncts						
20489 11	Grain—ground, rolled, pulverized, chopped, or crimped, excluding cornmeal	mil sacks (cwt)	(NA)	(X)	472.1	(NA)	(X)
20489 22	Mineral mixtures, including oyster shells prepared for feed use	mil lb	70	(S)	215.3	83	*12.9
	Alfalfa meal:						
20489 35	Dehydrated	1,000 s tons	54	1 736.4	134.1	63	*724.4
20489 39		do	29	(S)	35.2	46	*594.7
20489 00	Sun cured and cubed	do	4	(S)	47.9	17	**150.9
	Other prepared animal feeds, n.s.k.		(NA)	(X)	39.6	(NA)	(X)
2048A —	Specialty feeds						
2048A 01	Fresh and frozen meat of horses and other animals for pet food	mil lb	(NA)	(X)	524.5	(NA)	(X)
2048A 03	Other pet food, except dog and cat	do	16	(S)	52.4	8	68.8
2048A 05	Laboratory (mouse, guinea pig, etc.)	1,000 s tons	17	(S)	107.5	22	*190.7
2048A 07		do	8	89.3	24.0	9	66.2
2048A 09		do	8	**24.5	9.8	11	36.6
		do	30	*225.9	67.9	27	131.3
2048A 11	Rabbit	do	40	151.5	27.9	53	237.2
2048A 13	Other	do	48	449.8	194.8	54	*392.2
2048A 00	Specialty feeds, n.s.k.		(NA)	(X)	40.2	(NA)	(X)
20480 --	Prepared feeds, n.e.c., n.s.k.		(NA)	(X)	1 633.6	(NA)	(X)
20480 00	Prepared feeds, n.e.c., n.s.k., typically for establishments with 10 employees or more (see note)		(NA)	(X)	1 170.7	(NA)	(X)
20480 02	Prepared feeds, n.e.c., n.s.k., typically for establishments with less than 10 employees (see note)		(NA)	(X)	451.9	(NA)	(X)
							1 247.4
							936.4
							311.0

Note: In 1987 Census of Manufactures, data for establishments of small single unit companies with up to 20 employees were estimated from administrative-records data rather than data actually collected from respondents. Employment cutoffs used for administrative-records for each industry and shipments figures are included in code ending with "002". In both 1987 and 1982 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

¹Data reported by all producers, not just those with shipments of \$100,000 or more.

²For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

³In 1982, frozen doughs and batters were included in industry 2038, but were not collected as separate product categories.

⁴In 1982, head rice mixed with other ingredients was included in this industry and valued at \$100.4 million. For 1987, it was included in industry 2099 and valued at 225.0 million.

⁵In 1982, feed premixes, supplements, and concentrates were not collected as separate categories.

⁶In 1982, specialty feeds were classified in industry 2047.

Table 3. Materials Consumed by Kind: 1987 and 1982

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text.]

1987 material code	Material	1987		1982	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
	INDUSTRY 2041, FLOUR AND OTHER GRAIN MILL PRODUCTS				
	Materials, ingredients, containers, and supplies				
	Grain:				
011111	Wheat	mil bushels	(X)	3 207.9	(X)
011521		do	*799.0	2 344.4	652.2
011931	Corn	do	**108.2	185.6	69.2
011913	Oats	do	**16.6	27.3	(D)
011961	Barley	do	**.8	1.6	3.8
011961	Sorghum	do	(S)	4.5	(D)
204110	Wheat flour	1,000 cwt	*17 138.9	140.3	8 017.5
206011	Sugar (cane and beet) in terms of sugar solids	1,000 s tons	(S)	25.2	91.5
207003	Fats and oils for use in flour and prepared flour mixes	mil lb	**41.8	22.2	77.4
239303	Textile bags (including burlap, cotton, polypropylene, etc.)	mi bags	**64.8	15.9	**60.6
267420	Paper shipping sacks	mil sacks	521.8	98.1	(S)
265001	Paperboard containers, boxes, and corrugated paperboard		(X)	25.1	(X)
970099	All other materials, ingredients, containers, and supplies		(X)	139.7	(X)
971000	Materials, ingredients, containers, and supplies, n.s.k. ²		(X)	178.0	(X)

See footnotes at end of table.

Table 3. Materials Consumed by Kind: 1987 and 1982—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text.]

1987 material code	Material	1987		1982	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
INDUSTRY 2043, CEREAL BREAKFAST FOODS					
	Materials, ingredients, containers, and supplies	(X)	1 423.7	(X)	1 250.7
011111	Wheat	mil bushels	29.4	68.3	68.2
011241	Rice, rough	mil lb	282.5	30.6	50.7
011931	Oats	mil bushels	42.8	46.7	(D)
203415	Dried fruits and nuts (including raisins)	1,000 cwt	1 803.8	163.1	78.9
204110	Wheat flour	do	4 022.5	31.0	42.1
204001	Flour other than wheat and prepared flour mixes	do	4 069.2	47.8	45.1
206011	Sugar (cane and beet)	1,000 s tons	408.2	198.7	328.4
207003	Fats and oils for use in flour and prepared flour mixes	mil lb	86.2	23.0	(D)
190003	Flexible packaging materials		(X)	90.7	55.9
265001	Paperboard containers, boxes, and corrugated paperboard		(X)	313.6	257.2
970099	All other materials, ingredients, containers, and supplies		(X)	407.9	382.1
971000	Materials, ingredients, containers, and supplies, n.s.k. ²		(X)	2.3	1.4
INDUSTRY 2044, RICE MILLING					
	Materials, ingredients, containers, and supplies	(X)	796.1	(NA)	(NA)
011241	Rice, rough	mil lb	11 733.2	737.4	(NA)
970099	All other materials, ingredients, containers, and supplies		(X)	43.2	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k. ²		(X)	15.5	(NA)
INDUSTRY 2045, PREPARED FLOUR MIXES AND DOUGHES					
	Materials, ingredients, containers, and supplies	(X)	1 324.8	(NA)	(NA)
204110	Wheat flour	1,000 cwt	35 285.5	337.1	(NA)
204001	Flour, other than wheat, and prepared flour mixes	do	*664.3	37.1	(NA)
206011	Sugar (cane and beet)	1,000 s tons	205.2	101.0	(NA)
207003	Fats and oils for use in flour and prepared flour mixes	mil lb	181.4	47.4	(NA)
190003	Flexible packaging materials		(X)	17.7	(NA)
265001	Paperboard containers, boxes, and corrugated paperboard		(X)	89.9	(NA)
970099	All other materials, ingredients, containers, and supplies		(X)	528.4	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k. ²		(X)	166.5	(NA)
INDUSTRY 2046, WET CORN MILLING					
	Materials, ingredients, containers, and supplies	(X)	2 219.7	(X)	1 733.1
011001	Corn, including sorghum grain	mil bushels	16 393.7	1 427.1	480.6
970099	All other materials, ingredients, containers, and supplies		(X)	757.1	(X)
971000	Materials, ingredients, containers, and supplies, n.s.k. ²		(X)	35.5	(X)
INDUSTRY 2047, DOG AND CAT FOOD					
	Materials, ingredients, containers, and supplies	(X)	1 802.3	(NA)	(NA)
011101	Grain:				
011503	Wheat	1,000 s tons	*404.2	37.6	(NA)
011901	Corn	do	1 469.6	107.9	(NA)
011904	Oats	do	*34.1	5.1	(NA)
011905	Barley	do	(S)	2.5	(NA)
011905	Sorghum	do	94.1	8.7	(NA)
203703	Citrus pulp	do	.4	3.5	(NA)
204110	Wheat flour	1,000 cwt	1 942.3	20.9	(NA)
206011	Sugar (cane and beet) in terms of sugar solids	1,000 s tons	**14.2	2.3	(NA)
206013	Molasses	do	9.4	1.9	(NA)
207004	Fats and oils used in animal feeds	do	186.5	58.3	(NA)
207441	Cottonseed cake and meal	do	27.0	15.4	(NA)
207521	Soybean cake and meal	do	437.3	103.0	(NA)
207631	Other oilseed cake and meal	do	3.9	.6	(NA)
204893	Alfalfa meal, excluding alfalfa hay	do	22.9	2.8	(NA)
204135	Corn meal	1,000 cwt	(S)	11.5	(NA)
204133	Hominy feed and meal	1,000 s tons	(S)	3.9	(NA)
204607	Corn gluten feed and meal	do	277.2	61.2	(NA)
207721	Meat meal and tankage	do	565.9	143.8	(NA)
207736	Fish meal and solubles (dry weight equivalent)	do	72.7	37.0	(NA)
207722	Poultry feather and byproducts meal	do	324.9	75.1	(NA)
208249	Brewers' and distillers' grains	do	84.1	9.4	(NA)
287321	Urea	do	.8	.1	(NA)
204801	Supplements and concentrates (mixture of feed ingredients)		(X)	2.1	(NA)
204122	Millfeed and screenings:				
207522	Wheat	1,000 s tons	243.0	22.6	(NA)
204161	Soybean	do	59.1	10.2	(NA)
	Other	do	(S)	3.1	(NA)
281990	Minerals, except trace minerals:				
281996	Calcium	1,000 s tons	(S)	2.0	
289912	Phosphorus, elemental (technical)	do	(S)	6.1	
281999	Salt	do	(S)	4.0	
	Other	do	21.7	9.8	
283301	Microingredients:				
283302	Vitamins		(X)	15.2	(NA)
283302	Drugs and antibiotics		(X)	.8	(NA)
283304	Other, including trace minerals		(X)	30.3	(NA)
190003	Flexible packaging materials		(X)	—	(NA)
239305	Textile bags (including burlap, cotton, polypropylene, etc.)	mi bags	155.0	33.5	(NA)
267420	Paper shipping sacks	mil sacks	435.4	107.0	(NA)
265001	Paperboard containers, boxes, and corrugated paperboard		(X)	103.2	(NA)
340001	Metal containers		(X)	313.1	(NA)
970099	All other materials, ingredients, containers, and supplies		(X)	322.3	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k. ²		(X)	104.5	(NA)

See footnotes at end of table.

Table 3. Materials Consumed by Kind: 1987 and 1982—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text.]

1987 material code	Material	1987		1982		
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)	
INDUSTRY 2048, PREPARED FEEDS, N.E.C.						
Materials, ingredients, containers, and supplies						
		(X)	8 085.0	(NA)	(NA)	
011101	Grain:					
011101	Wheat	1,000 s tons	*1 384.1	83.7	(NA)	
011503	Corn	do	15 820.9	1 059.8	(NA)	
011901	Oats	do	*602.9	65.6	(NA)	
011904	Barley	do	(D)	(D)	(NA)	
011905	Sorghum	do	*2 113.6	164.9	(NA)	
203703	Citrus pulp	do	(D)	(D)	(NA)	
204110	Wheat flour	1,000 cwt	(D)	(D)	(NA)	
206011	Sugar (cane and beet) in terms of sugar solids	1,000 s tons	(S)	10.9	(NA)	
206013	Molasses	do	*1 535.2	70.1	(NA)	
207004	Fats and oils used in animal feeds	do	803.8	172.0	(NA)	
207441	Cottonseed cake and meal	do	(D)	(D)	(NA)	
207521	Soybean cake and meal	do	(D)	(D)	(NA)	
207631	Other oilseed cake and meal	do	(D)	(D)	(NA)	
204893	Alfalfa meal, excluding alfalfa hay	do	(D)	(D)	(NA)	
204135	Corn meal	1,000 cwt	(D)	(D)	(NA)	
204133	Hominy feed and meal	1,000 s tons	(D)	(D)	(NA)	
204607	Corn gluten feed and meal	do	355.1	83.0	(NA)	
207721	Meat meal and tankage	do	(D)	(D)	(NA)	
207736	Fish meal and solubles (dry weight equivalent)	do	278.0	97.6	(NA)	
207722	Poultry feathers and byproducts meal	do	443.4	93.1	(NA)	
208249	Brewers' and distillers' grains	do	*479.3	52.5	(NA)	
287321	Urea	do	(D)	(D)	(NA)	
204801	Supplements and concentrates (mixture of feed ingredients)		(X)	(D)	(NA)	
Millfeed and screenings:						
204122	Wheat	1,000 s tons	2 940.1	185.8	(NA)	
207522	Soybean	do	1 487.0	53.9	(NA)	
204161	Other	do	1 068.6	70.4	(NA)	
Minerals, except trace minerals:						
281990	Calcium	1,000 s tons	24 799.5	39.6		
281996	Phosphorus, elemental (technical)	do	600.4	116.0		
289912	Salt	do	477.8	17.3	(NA)	
281999	Other	do	288.0	51.4		
Microingredients:						
283301	Vitamins		(X)	162.0	(NA)	
283302	Drugs and antibiotics		(X)	248.1	(NA)	
283304	Other, including trace minerals		(X)	226.0	(NA)	
190003	Flexible packaging materials		(X)	—	(NA)	
239305	Textile bags (including burlap, cotton, polypropylene, etc.)	mi bags	220.2	17.8	(NA)	
267420	Paper shipping sacks	mil sacks	1 680.2	72.7	(NA)	
265001	Paperboard, containers, boxes, and corrugated paperboard		(X)	5.7	(NA)	
340001	Metal containers		(X)	1.8	(NA)	
970099	All other materials, ingredients, containers, and supplies		(X)	464.9	(NA)	
971000	Materials, ingredients, containers, and supplies, n.s.k. ²		(X)	2 190.1	(NA)	

¹For some establishments, data have been estimated from central unit values which are based on quantity-cost relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

²Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.



APPENDIX

Scope and Coverage and Explanation of Terms

GENERAL

The 1987 Census of Manufactures is the 32nd census of manufacturing establishments conducted in the United States. For 1987, it was conducted as part of the economic censuses, which included the censuses of mineral industries, construction industries, retail and wholesale trades, service industries, selected transportation activities, and minority-owned and women-owned businesses, under authority of title 13 of the United States Code. Title 13 specifies that an economic census be conducted every 5 years to cover years ending in 2 and 7.

SCOPE AND COVERAGE

Establishment Basis of Reporting

The census of manufactures is conducted on an establishment basis. All manufacturing establishments with one paid employee or more at any time during the year are covered by the census of manufactures. Therefore, a company operating at more than one location is required to file a separate report for each location. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units which service manufacturing establishments of the same company. Where these auxiliary operations are conducted at the same location as the manufacturing operation, they are usually included in the report for the operating manufacturing establishment.

Use of Administrative Records

From a universe of approximately 350,000 manufacturing establishments in the 1987 Census of Manufactures, approximately 150,000 small single-establishment companies were excused from filing reports. Selection of the small establishment nonmail cases was done on an industry-by-industry basis. A variable cutoff was used to determine those establishments for which administrative records were to be used in place of a census report. The cutoffs were selected so the administrative-record cases would account for approximately 3 percent or less of the value of shipments for the industry. These cutoffs were then adjusted so that all single-establishment companies with less than 5 employees were excluded from the mail canvass, while all establishments with more than 20 employees were included. Where establishments in the 5 to 20 employee size range were included in the mail canvass, an abbreviated census form was frequently used.

For these nonmail establishments, (and a small number of larger establishment whose reports were not received at the time the data were tabulated) data on employment, payroll, and receipts were obtained from administrative records of other government agencies rather than from census forms. The administrative-record information was then used in conjunction with industry averages to estimate the data for these establishments. The value of shipments and cost of materials were not distributed among specific products and materials but were included in the product and material "not specified by kind" (n.s.k.) categories.

EXPLANATION OF TERMS

Number of establishments and companies—A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

All employees—Includes all full-time and part-time employees on the payrolls at any time during the year. Included are all persons on paid sick leave, paid holidays, and paid vacations. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average of those for midmonth payroll periods of March, May, August, and November.

Production workers—Includes workers up through the working-supervisor level engaged in fabricating, processing, assembling, inspecting, receiving, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial, guard services, product development, auxiliary production for plant's own use (e.g., power-plant), recordkeeping, and other closely associated services. Truckdrivers delivering ready-mixed concrete are also included in production workers.

Other employees—Includes nonproduction personnel, including those engaged in the following activities: supervision above working-supervisor level, sales (including driver/salespersons), sales delivery (truckdrivers and helpers), advertising, credit collection, installation and

servicing of own product, clerical and routine office functions, executive, purchasing, finance, legal, personnel (including cafeteria, etc.), professional, and technical employees.

Payroll—Includes the gross earnings for the “employees” defined above, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees’ Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. Respondents were told that in reporting they could follow the definition of payrolls used for calculating the Federal withholding tax.

Production-worker hours—Covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave when the employee was not at the plant.

Cost of materials—Refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuels consumed, regardless of whether they were purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (a) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year; (b) electric energy purchased; (c) fuels consumed for heat, power, or generating electricity; (d) work done by others on materials or parts furnished by manufacturing establishments (contract work); and (e) products bought and resold in the same condition.

Specific materials consumed (table 3)—In addition to the total cost of materials which every establishment was required to report, information was also collected for most manufacturing industries on the consumption of major materials used in manufacturing. These inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers’ records. Establishments consuming less than a specified amount (usually \$10,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which administrative records were used was estimated as “not specified by kind” (n.s.k.).

Value of shipments and other receipts—Generally refers to received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all

miscellaneous receipts such as receipts for contract work performed for others, installation and repair receipts, sale of scrap, and sale of products bought and resold without further processing. Included are all items made by or for the establishment from materials owned by it whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In a few industries, the value of production or value of work completed is used instead of value of shipments. These industries are identified in the introduction and are footnoted in table 1.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, that is, including not only the direct costs of production but also a reasonable proportion of “all other costs” (including company overhead and profit).

Shipments or production of individual products (table 2)—In the 1987 census, detailed shipment information was collected for approximately 11,000 individual products. These products are identified by a seven-digit code and are grouped into approximately 1,500 classes of products, which in turn are primary to 459 four-digit industries. Data at the five-digit product-class level have been collected each year as part of the annual survey of manufactures. Information at the seven-digit level, collected for many industries in the current industrial reports program, is not included in this table.

Value added by manufacture—This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments for products manufactured plus receipts for services rendered. The result of this calculation is then adjusted by the addition of value added by merchandising operations (that is, the difference between the sales value and cost of merchandise sold without further manufacturing, processing, or assembly) plus the net change in finished goods and work-in-process inventories between the beginning and end of the year.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1), value added is adjusted only for the change in work-in-process inventories between the beginning and end of the year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

Value added avoids the duplication in the figure for value of shipments which results from the use of products of some establishments as materials by others. Value

added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

Expenditures for new plant and equipment—Establishments in operation and any known plants under construction were asked to report their expenditures for (a) permanent additions and major alterations to manufacturing establishments and (b) new machinery and equipment used for replacement and additions to plant capacity if they are of the type for which depreciation accounts are ordinarily maintained.

These totals exclude expenditures for used plant and equipment, expenditures for land, and cost of maintenance and repairs charged as current operating expenses. Data for used plant and equipment will be published in the final industry bulletin.

End-of-year inventories—Comprised of (a) finished products; (b) work-in-process; and (c) materials, supplies, fuels, etc. Beginning in 1982, respondents were asked to report their inventories at (the lower of) cost or market prior to adjustment to LIFO cost. This is a change from prior years in which respondents were permitted to value their inventories using any generally accepted accounting method.

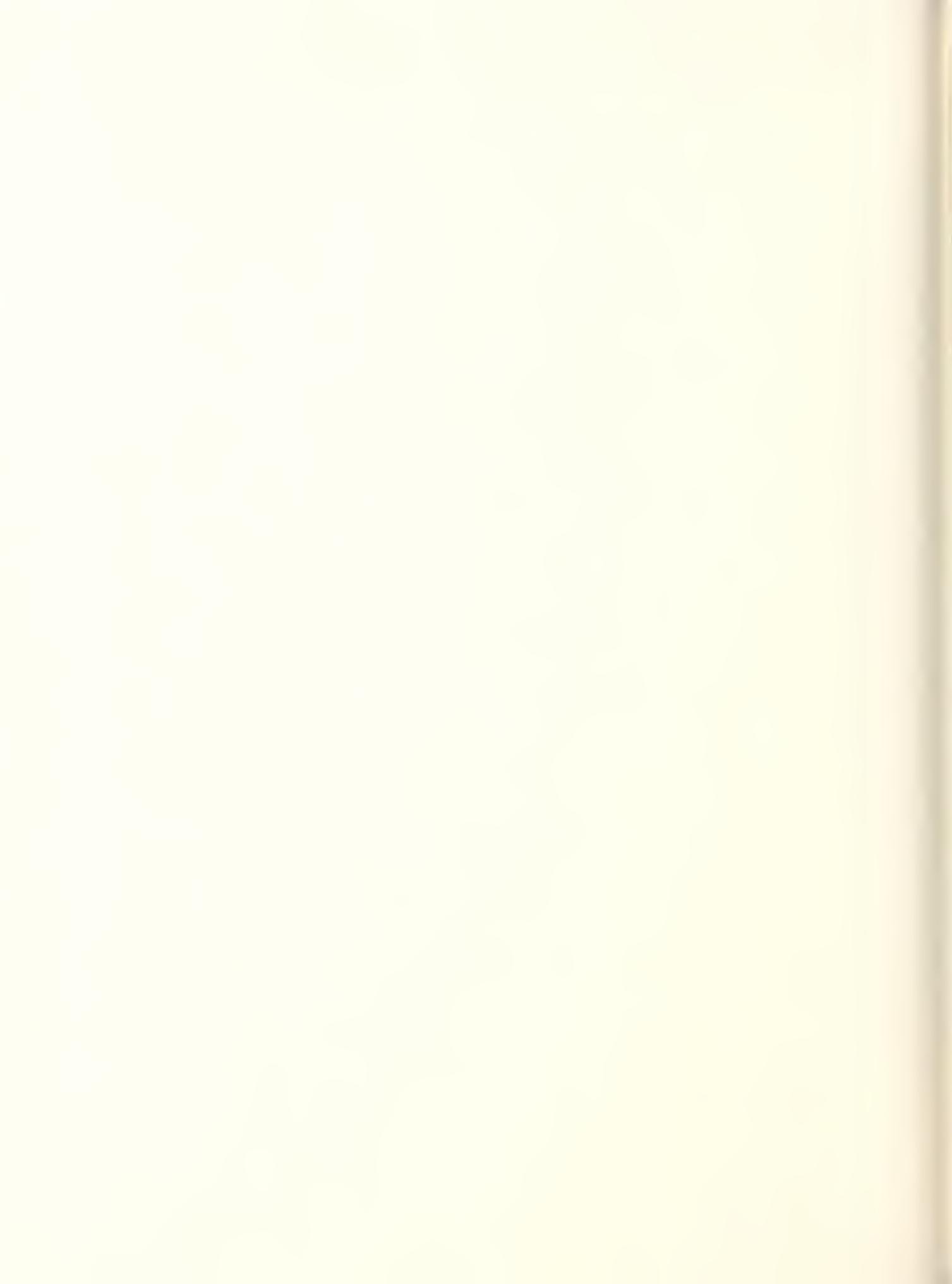
Therefore, 1982 through 1987 data for inventories are not strictly comparable to prior-year data.

Specialization and coverage ratios—An establishment is classified in a particular industry if its shipments of primary products of the industry exceed in value its shipments of the products of any other single industry. An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). The following ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in table 1 and data on product shipments shown in table 2.

Specialization ratio—Represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio—Represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments, wherever classified.





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No